

REMARKS

Claim Rejections

Claims 1-4 and 20-21 are rejected under 35 U.S.C. § 102(e) as being anticipated by Yang et al. (US-6,649,437). Claims 1-13, 15 and 20-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kneissl et al. (US-6,448,102) in combination with Chen et al. (US-6,555,405) and Carter-Coman et al. (US-2001/0004534).

Claim Amendments

By this Amendment, Applicant has amended claim 21 to properly depend from claim 20. It is believed that claims 1-13, 15 and 20-21 specifically set forth each element of Applicant's invention in full compliance with 35 U.S.C. § 112, and define subject matter that is patentably distinguishable over the cited prior art, taken individually or in combination.

Applicant respectfully traverses the rejection of claims 1-4 and 20-21 under 35 U.S.C. §102 (e) as being anticipated by Yang et al. Applicant submits that the patent to Yang et al. is not "prior art" under any section of 35 U.S.C. §102 with respect to the instant application. 35 U.S.C. §102 (e)(2) requires that a patent be by another filed in the United States before the invention by the Applicant for a patent. Applicant notes that Yang et al. was not filed in the United States until August 20, 2002, a date that is subsequent to Applicant's filing date of January 30, 2002. Thus, it is believed to be quite evident that Yang et al. is not "prior art" under 35 U.S.C. § 102. The outstanding rejection of claims 1-4 and 20-21 as being anticipated by Yang et al. is respectfully traversed.

In Kneissl et al., the member (1420) in FIG. 14c or member (1120) in FIG. 11b is a two-P contact and not equivalent to an ohmic contact grid pattern (112) of the present invention. Furthermore, member (1420) is buried in the PbSn layer (1421), a solder layer. By contrast, in the present invention, the ohmic contact grid pattern (112) is buried in the transparent conductive oxide layer (114). The PbSn layer (1421) is not a transparent layer.

In the present invention, the transparent ohmic contact metal layer (210) is to improve properties of the hole concentration of the p-type ohmic contact layer. The metal layer (210) should be thin enough, e.g. 10 nm. In Kneissl et al., the layer (1117) or (1477) is an n-metal layer.

Kneissl et al. do not teach a transparent conductive oxide layer formed on said light emitting structure; said transparent conductive oxide layer having one of a metal grid and a dot pattern formed therein and abutting said light emitting structure; a metal reflective layer formed on said transparent conductive oxide layer; said transparent conductive oxide layer being formed to prevent said metal reflective layer from reacting with said light emitting layers while annealing for improving ohmic contact of electrodes of said light emitting diode; nor do Kneissl et al. teach a diffusion barrier layer formed in between said metal reflective layer and said metal bonding layer.

As stated in Chen et al., even though it is true that non-absorbing materials can improve light emitting efficient. However, the non-absorbing materials disclosed by Chen et al. include In_2O_3 , SnO_2 , ITO, HfO_2 , MgO , SiO (SiO_2 SiOx), TiO (TiO_2 , TiOx , Ti_2O_3 , Ti_2O_5), ZnO , ZnS , and Al_2O_3 . Most of these non-absorbing materials are insulators, which will cause current injection interrupted for LED with two electrodes formed on two sides thereof.

Chen et al. do not teach said transparent conductive oxide layer having one of a metal grid and a dot pattern formed therein and abutting said light emitting structure; a metal reflective layer formed on said transparent conductive oxide layer; nor do Chen et al. teach a transparent conductive oxide layer formed on said transparent ohmic contact metal layer.

In Carter-Coman et al., the ohmic contact grid pattern (32) is buried in the reflector (34) not in the transparent conduct oxide layer.

A simple layer formed of the transparent conductive oxide layer (114) such as In_2O_3 , or ITO itself does not provide ohmic contact property. In fact, a Schottky barrier is formed between the transparent conductive oxide layer (such as ITO is an n-type material) and p-type light emitting epi-layer, please see reference US Pat.

6,552,367 issued to Hsich et al., col. 2, line 62 to col. 3, line 1, and US Pat. 6,350,997 issued to Saeki, col. 2, lines 3 to 9.

Carter-Coman et al. do not teach said transparent conductive oxide layer having one of a metal grid and a dot pattern formed therein and abutting said light emitting structure; nor do Carter-Coman et al. teach a transparent conductive oxide layer formed on said transparent ohmic contact metal layer.

Consequently, it would not be obvious to one of ordinary skill in the art to add a transparent conductive oxide layer chosen from many non-absorbing materials shown in Chen et al. and add ohmic contact grid pattern (1420) from Kneissl et al. or an ohmic contact grid pattern (32) from Carter-Coman et al. and burying it in the a transparent conduct oxide layer rather than an reflector (34) as the present Application.

Even if the teachings of Kneissl et al., Chen et al. and Carter-Coman et al. were combined, as suggested by the Examiner, the resultant combination does not suggest: said transparent conductive oxide layer having one of a metal grid and a dot pattern formed therein and abutting said light emitting structure; nor does the combination suggest a transparent conductive oxide layer formed on said transparent ohmic contact metal layer.

It is a basic principle of U.S. patent law that it is improper to arbitrarily pick and choose prior art patents and combine selected portions of the selected patents on the basis of Applicant's disclosure to create a hypothetical combination which allegedly renders a claim obvious, unless there is some direction in the selected prior art patents to combine the selected teachings in a manner so as to negate the patentability of the claimed subject matter. This principle was enunciated over 40 years ago by the Court of Customs and Patent Appeals in In re Rothermel and Waddell, 125 USPQ 328 (CCPA 1960) wherein the court stated, at page 331:

The examiner and the board in rejecting the appealed claims did so by what appears to us to be a piecemeal reconstruction of the prior art patents in the light of appellants' disclosure. ... It is easy now to attribute to this prior art the knowledge which was first made available by appellants and then to assume that it would have been obvious to one having the ordinary

skill in the art to make these suggested reconstructions. While such a reconstruction of the art may be an alluring way to rationalize a rejection of the claims, it is not the type of rejection which the statute authorizes.

The same conclusion was later reached by the Court of Appeals for the Federal Circuit in Orthopedic Equipment Company Inc. v. United States, 217 USPQ 193 (Fed.Cir. 1983). In that decision, the court stated, at page 199:

As has been previously explained, the available art shows each of the elements of the claims in suit. Armed with this information, would it then be non-obvious to this person of ordinary skill in the art to coordinate these elements in the same manner as the claims in suit? The difficulty which attaches to all honest attempts to answer this question can be attributed to the strong temptation to rely on hindsight while undertaking this evaluation. It is wrong to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. Monday morning quarterbacking is quite improper when resolving the question of non-obviousness in a court of law.

In In re Geiger, 2 USPQ2d, 1276 (Fed.Cir. 1987) the court stated, at page 1278:

We agree with appellant that the PTO has failed to establish a *prima facie* case of obviousness. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching suggestion or incentive supporting the combination.

Applicant submits that there is not the slightest suggestion in either Kneissl et al., Chen et al., or Carter-Coman et al. that their respective teachings may be combined as suggested by the Examiner. Case law is clear that, absent any such teaching or suggestion in the prior art, such a combination cannot be made under 35 U.S.C. § 103.

Neither Kneissl et al., Chen et al., nor Carter-Coman et al. disclose, or suggest a modification of their specifically disclosed structures that would lead one having ordinary skill in the art to arrive at Applicant's claimed structure. Applicant hereby respectfully submits that no combination of the cited prior art renders obvious Applicant's claims.

Summary

In view of the foregoing amendments and remarks, Applicant submits that this application is now in condition for allowance and such action is respectfully requested. Should any points remain in issue, which the Examiner feels could best be resolved by either a personal or a telephone interview, it is urged that Applicant's local attorney be contacted at the exchange listed below.

Respectfully submitted,

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